



## Seasonality of retinal detachment incidence and its associations with climate: An 11-year nationwide population-based study

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### Abstract:

This study aimed to examine the seasonal variability of retinal detachment (RD) in Taiwan by using an 11-yr nationwide population database. This study also investigated the association of weather conditions, i.e., ambient temperature, relative humidity, rainfall, monthly hours of sunshine, and atmospheric pressure, with RD. Data were retrospectively collected from the Taiwan National Health Insurance Research Database. The study sample included 23 718 RD hospitalizations between January 1999 and December 2009. The incidence rate of RD/100 000 people over the 132 months was computed according to sex and age groupings of /Euro Surveillance (Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin)60 yrs. Then, the association between climatic factors and the monthly RD incidence rate was examined. The ARIMA (autoregressive integrated moving average) method was also employed to test the seasonality of RD incidence rates and their association with climatic factors. The annual RD incidence rates were between 7.8 and 10.8 cases/100 000 people during the study period. A fairly similar seasonal pattern of monthly RD incidence rates was apparent for males and females and males and females combined. Rates were highest August through October, decreasing in November, and lowest in February. After adjusting for time, trend, and month, the ARIMA regression models for the male, female, and males and females combined consistently revealed the monthly RD incidence rate was significantly and positively associated with ambient temperature, but negatively associated with atmospheric pressure. The authors conclude that the monthly RD incidence rates were significantly associated with seasonality. The monthly RD incidence rates were positively associated with ambient temperature and negatively associated with atmospheric pressure.

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### Resource Description

#### Exposure : ☒

weather or climate related pathway by which climate change affects health

Meteorological Factors, Meteorological Factors, Precipitation, Solar Radiation, Temperature

**Temperature:** Fluctuations

#### Geographic Feature: ☒

resource focuses on specific type of geography

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Other Geographical Feature

**Other Geographical Feature** : sub-tropical

**Geographic Location:** ☒

resource focuses on specific location

Non-United States

**Non-United States:** Asia

**Asian Region/Country:** Other Asian Country

**Other Asian Country:** Taiwan

**Health Impact:** ☒

specification of health effect or disease related to climate change exposure

Other Health Impact

**Other Health Impact:** retinal detachment

**Population of Concern:** A focus of content

**Population of Concern:** ☒

populations at particular risk or vulnerability to climate change impacts

Children, Elderly

**Resource Type:** ☒

format or standard characteristic of resource

Research Article

**Timescale:** ☒

time period studied

Time Scale Unspecified